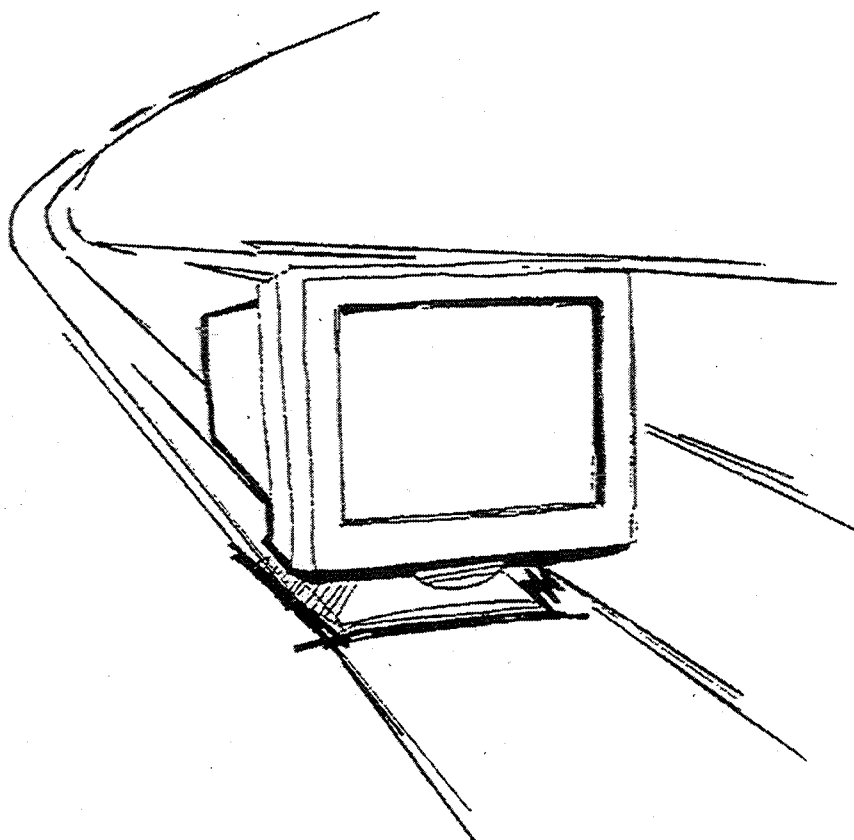


1565D

TROUBLESHOOTING

GUIDE



CTX

The Monitor Specialists

EDITION 1
July 1995

CONTENTS

1.0 IMPORTANT NOTICE & INTRODUCTION	1
2.0 GENERAL MAINTENANCE PROCEDURE	2
3.0 FUNCTION BLOCK DIAGRAM BLOCK	3
4.0 TIMING MODE (CTX Presetting Timing)	4
5.0 ADJUSTMENT	6
6.0 TROUBLESHOOTING	8
6.1 MAIN TROUBLESHOOTING ROUTINE	8
6.2 POWER SAVING CIRCUIT TROUBLESHOOTING ROUTINE	9
6.3 POWER SUPPLY CIRCUIT TROUBLESHOOTING ROUTINE.....	11
6.4 VIDEO CIRCUIT TROUBLESHOOTING ROUTINE	13
6.5 DEFLECTION CIRCUIT TROUBLESHOOTING ROUTINE.....	15
6.5.1 Horizontal Deflection Circuit	15
No Raster.....	15
H-Asynchronous.....	16
Linearity	17
Out of phase	18
Width Abnormal	18
6.5.2 Vertical Deflection Circuit	19
No vertical scan	19
Side pin distortion	20
V-Asynchronous.....	21
Vertical position	21
Vertical Size.....	22
7.0 IC CONFIGURATION	28
8.0 LAYOUT FOR MAIN COMPONENTS AND ADJUSTED	29
9.0 CIRCUIT DIAGRAM.....	29
10.0 RECOMMENDED SPARE PARTS LIST	30
11.0 CRT CONTRAST LIST.....	31

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1.0 IMPORTANT NOTICE & INTRODUCTION

IMPORTANT NOTICE

Please read before attempting service

1. While the monitor is in operation, do not attempt to connect or disconnect any wires.
2. Make sure the power cord is disconnected before replacing any parts in the monitor.
3. When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the monitor.
4. When servicing the H.V. area, be certain that the C.R.T anode is safely discharged before removing the anode cap.
5. Caution must be exercised when servicing this monitor.

INTRODUCTION

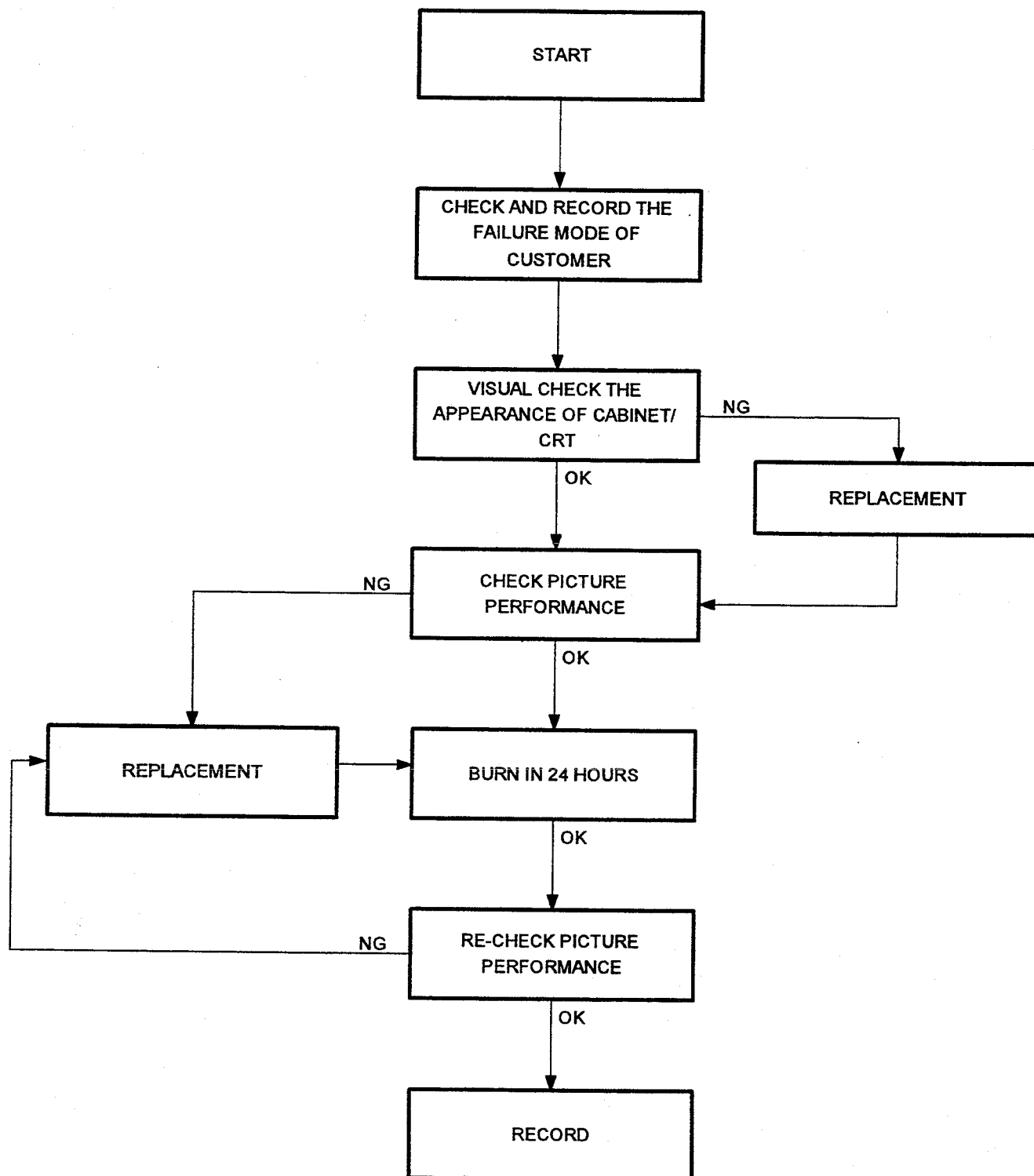
Enhanced repair capabilities

This troubleshooting guide is edited for model 1565D when service is necessary. There are four primary parts included in this troubleshooting guide which offer the easiest way to locate problem points and repair the machine to the best possible condition.

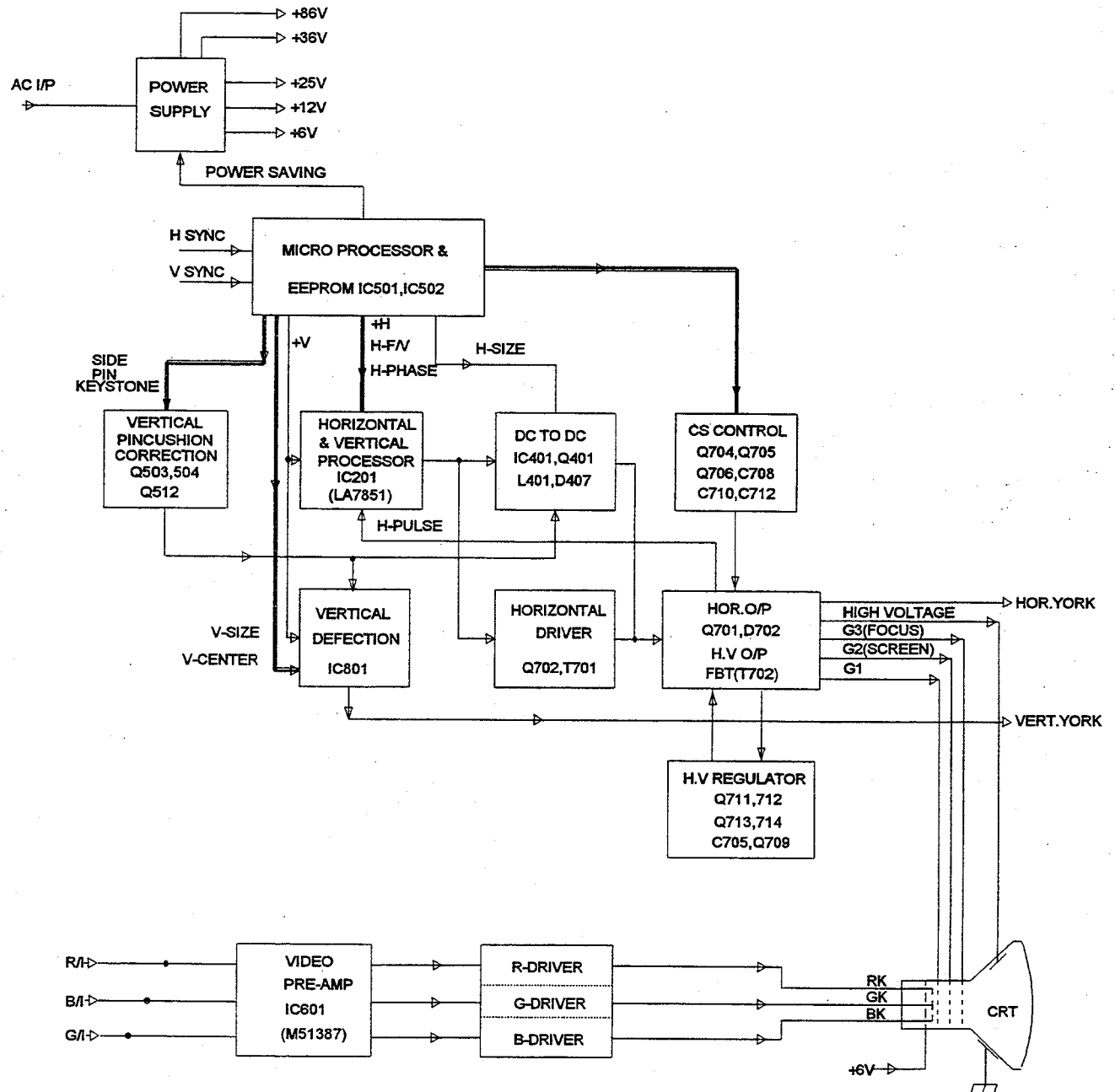
1. The Adjustment section offers the adjustable method, steps and all data of the factory's initial settings which can make the machine get the best performance at that time. By the way, before adjusting, the machine must be warmed up for at least 10 minutes and the CRT face must be in an eastward direction.
2. The Troubleshooting section has four main parts including: power supply, power saving, CRT, deflection & video circuit. Each offers fast repair routine and the IC, transistor voltage records against all specified signal modes. These voltage readings are measured with a HP 34401A multimeter with input impedance 10M Ω (0.1V~1000V range) and waveforms shown on circuit schematics are measured by a Tektronix TDS 520 digital oscilloscope, the monitor receives VGA-480 full white square pattern.

3. The CRT contrast list offers repairmen / technicians the contrast data when CRT replacement is necessary from a different type of CRT.
4. The Spare parts list offers the CTX part number (P/N) which is used frequently by repairmen / technicians. For details please refer to the service guide or service manual. If there is any engineering change regarding this model, CTX will issue the updated information by a non-periodical Technical Bulletin.

2.0 GENERAL MAINTENANCE PROCEDURE



3.0 FUNCTION BLOCK DIAGRAM BLOCK



4.0 TIMING MODE (CTX Presetting Timing *)

NAME	VGA-350		* VGA-400		* VGA-480		* SVGA II		* SVGA III		* 8514NI	
PIXEL RATE	25.2 MHz		25.2 MHz		25.2 MHz		40 MHz		50 MHz		65 MHz	
Fh	31.5 KHZ		31.5 KHZ		31.5 KHZ		37.879 KHZ		48.077 KHZ		48.363 KHZ	
Fv	70HZ		70 HZ		60 HZ		60.3165 HZ		72.187 HZ		60 HZ	
INTERLACE MODE	NO		NO		NO		NO		NO		NO	
OUTPUT	ANALOG		ANALOG		ANALOG		ANALOG		ANALOG		ANALOG	
FULL SCALE Vpp	1,000		1,000		1,000		1,000		1,000		1,000	
SYNC ON R/G/B	NO		NO		NO		NO		NO		NO	
CONTROL BITS	0000 0000		0000 0000		0000 0000		0000 0000		0000 0000		0000 0000	
UNIT	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us
FRAME BORDER-H		us		us		us		us		us		us
FRAME BORDER-V		ms		ms		ms		ms		ms		ms
H TOTAL	800	31.78 us	800	31.78 us	800	31.78 us	1056	26.4 us	1040	20.80 us	1344	20.677us
H DISPLAY	641	25.42 us	641	25.42 us	641	25.42 us	800	20.0 us	800	16.0 us	1024	15.754 us
H REAR PORCH	48	1.91 us	48	1.91 us	48	1.91 us	88	2.2 us	64	1.28 us	160	2.462 us
H SYNC WIDTH	96	3.81 us	96	3.81 us	96	3.81 us	128	3.2 us	120	2.40 us	136	2.092 us
H SYNC POLARITY	+		-		-		+		+		-	
V TOTAL	450	14.27 ms	450	14.27 ms	628	16.579ms	628	16.579ms	666	13.853ms	806	16.667ms
V DISPLAY	350	11.12 ms	400	12.71 ms	600	15.840ms	600	15.840ms	600	12.480ms	768	15.880ms
V REAR PORCH	60	1.91 ms	35	1.11 ms	23	0.607 ms	23	0.607 ms	23	0.478 ms	29	0.600 ms
V SYNC WIDTH	2	0.06 ms	2	0.06 ms	4	0.106 ms	4	0.106 ms	6	0.125 ms	6	0.124 ms
V SYNC POLARITY	-		+		-		+		+		-	
EQUALIZATION ?	NO		NO		NO		NO		NO		NO	
SERRATION ?	NO		NO		NO		NO		NO		NO	
COMP SYNC POLARITY	-		-		-		-		-		-	

NAME	8514A		* V1024-70		* VII1024-75		* VESA-64K		VESA-480	
PIXEL RATE	44.9 MHZ		75.0 MHZ		78.75 MKZ		110.0 MHZ		31.5 MHZ	
Fh	35.5 KHZ		56.476 KHZ		60.023 KHZ		63.657 KHZ		37.860 KHZ	
Fv	87 HZ		70.069 HZ		75.029 HZ		59.997 KHZ		72.809 HZ	
INTERLACE MODE	YES		NO		NO		NO		NO	
OUTPUT	ANALOG		ANALOG		ANALOG		ANALOG		ANALOG	
FULL SCALE Vpp	1,000		1,000		1,000		1,000		1,000	
SYNC ON R/G/B	NO		NO		NO		NO		NO	
CONTROL BITS	0000 0000		0000 0000		0000 0000		0000 0000		0000 0000	
UNIT	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us	PIXEL	ms/us
FRAME BORDER-H	0	us	0	us	0	us	0	us	0	us
FRAME BORDER-V	0	ms	0	ms	0	ms	0	ms	0	ms
H TOTAL	1268	28.10 us	1328	17.707 us	1312	16.660 us	1728	15.709 us	832	26.413 us
H DISPLAY	1024	22.80 us	1024	13.653 us	1024	13.003 us	1306	11.873 us	640	20.317 us
H REAR PORCH	52	1.15 us	144	1.920 us	176	2.235 us	216	1.964 us	128	4.063 us
H SYNC WIDTH	176	3.91 us	136	1.813 us	96	1.219 us	112	1.018 us	40	1.270 us
H SYNC POLARITY	+		—		+		+		—	
V TOTAL	4.8	11.50 ms	806	14.272 ms	800	13.328 ms	1061	1.668 ms	520	13.735 ms
V DISPLAY	384	10.80 ms	768	13.599 ms	768	12.795 ms	1019	16.008 ms	480	12.678 ms
V REAR PORCH	20	0.56 ms	29	0.513 ms	28	0.466 ms	37	0.581 ms	28	0.740 ms
V SYNC WIDTH	4	0.11 ms	6	0.106 ms	3	0.050 ms	5	0.079 ms	3	0.079 ms
V SYNC POLARITY	+		—		+		+		—	
EQUALIZATION ?	NO		NO		NO		NO		NO	
SERRATION ?	NO		NO		NO		NO		NO	
COMP SYNC POLARITY	—		—		—		+		—	

5.0 ADJUSTMENT

5.1 1565D ADJUSTMENT

- voltage adjustment:** VR101,VR102 / VGA-480

1. Use VGA-480 timing for input signal.
2. Attach the multimeter (with a DC voltage range of 200V) adjust VR101 to get $85.5V \pm 0.5V$ at TP1.
3. Adjust VR102 to get $12V \pm 0.05V$ at TP2.

- Hi-voltage adjustment:** VR702 / VGA-480

- a. Turn the power switch off before attaching multimeter with a high voltage probe by a factor 1000:1 between CRT anode and GND.
- b. Adjust VR702 to make sure the measurement readings are $25.0V \pm 0.2V$ (ie CRT anode voltage is $25.0KV \pm 0.2KV$).

- Horizontal hold adjustment:** VR201,VR202

- a. Connect TP4 to GND and adjust VR202 to get picture stand or scroll toward left or right slowly when input is 8514A timing signal.
- b. Change input timing to VESA1024 and adjust VR201 to get picture stand.

- H-PHASE adjustment:** EXT SW / ALL MODE

Adjust EXTERNAL H-PHASE SW to shift picture to the center of screen, every mode.

- V-line adjustment:**VR801 / VESA1024

First adjust V-CENTER EXTERNAL VR to make picture to the V-center of the screen, and then adjust VR801 to correct the V-linearity of crosshatch pattern.

- H-WIDTH adjustment:** VR401 / VII1024

- a. Turn EXTERNAL H-WIDTH VR to min. position.
- b. Adjust VR401 to get the picture's width is $260 \pm 5mm$.

- V-SIZE adjustment:** EXT SW / ALL MODE

Adjust EXT V-SIZE SW to get vertical size of each mode is $202 \pm 5mm$.

- PARALLELOGRAM adjustment:** VR204 / ALL MODE

Adjust VR204 to get a picture that right edge parallel with left edge of each mode; which the spec. is $\pm 2mm$.

- FOCUS adjustment:** FOCUS VR / VGA-480

Adjust FOCUS VR on the FBT to attain a balanced focus for all zones on the screen.

- White balance adjustment:**

- a. Pre adj. & brightness settings (Before adjusting, CRT must be degaussed.)

(1) Please set the VR601, 602, 603, 604, 605, 606 on mechanical center, and the Brightness VR to the click point, the Contrast VR to Max..

(2) Operating on VGA-480 mosaic pattern and adjust the SCREEN VR to set the raster luminance between 1 ~ 2FL, then adjust VR604,605,606 (BIAS VR) to make the raster's C.I.E. coordinates value as $x=0.281 \pm 0.01$, $y=0.311 \pm 0.01$ were measured by color analyzer.

(3) Change timing to VGA-400 color bar pattern, correct SCREEN VR which on the FBT to make raster brightness disappear and the "1" row of color bar pattern (as below figure) visible obscurely.

		R+B		B+G		R+G		
Brightness		BRIGHT BLUE	BRIGHT RED	BRIGHT PURPLE	GREEN	BLUE + GREEN	RED + YELLOW	WHITE
	15							7
	14							6
	13							5
	12							4
	11							3
	10							2 → visible
	9							1 → visible
	8							0

reduce ↓

obscurely

b. White balance fine regulation:

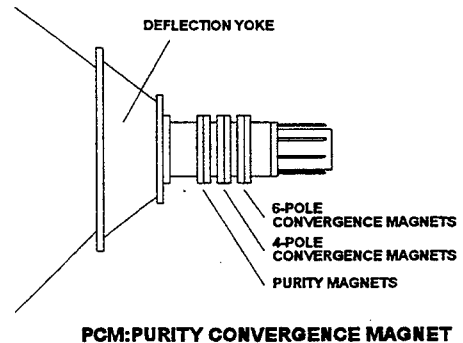
- (1) Receive VGA-480 timing, full white square pattern.
- (2) Adjust Brightness VR. to MIN., Contrast VR. to MAX..
- (3) Adjust VR601,602,603 to make picture C.I.E. coordinates value as $x=0.281 \pm 0.01$, $y=0.311 \pm 0.01$, were measured by color Analyzer.
- (4) Change the BRIT. VR to the click point and adjust the CONT. VR to make the luminance of picture between 1 ~ 2FL, then adjust VR604, 605, 606 (BIAS VR) to get $X=0.281 \pm 0.005$, $Y=0.311 \pm 0.005$, were measured by color Analyzer.
- (5) If the white balance is not met, repeat step (2) ~ (4).

Please set Brightness VR to click point and Contrast VR to Max., and check item (3) of Per adj & brightness settings, then receive VGA-480 mosaic pattern and check the luminance of Mosaic pattern is between 50 ~ 60FL. If above check item isn't meet, please modify VR601 ~ VR605 and return to white balance fine regulation section.

• ADJUSTMENT FOR CONVERGENCE

- (1) Use a magenta crosshatch on the display.
- (2) Adjust the focus for the best overall focus on the screen.
- (3) Also adjust the brightness to the desired condition.
- (4) Vertical red and blue lines are converged by varying the angle between the two tabs of the 4 pole magnets on the PCM assembly. (See diagram below)
- (5) Horizontal red and blue lines are converged by moving the two tabs at the same time keeping the angle between them constant.
- (6) Use a white crosshatch pattern on the display.
- (7) Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.

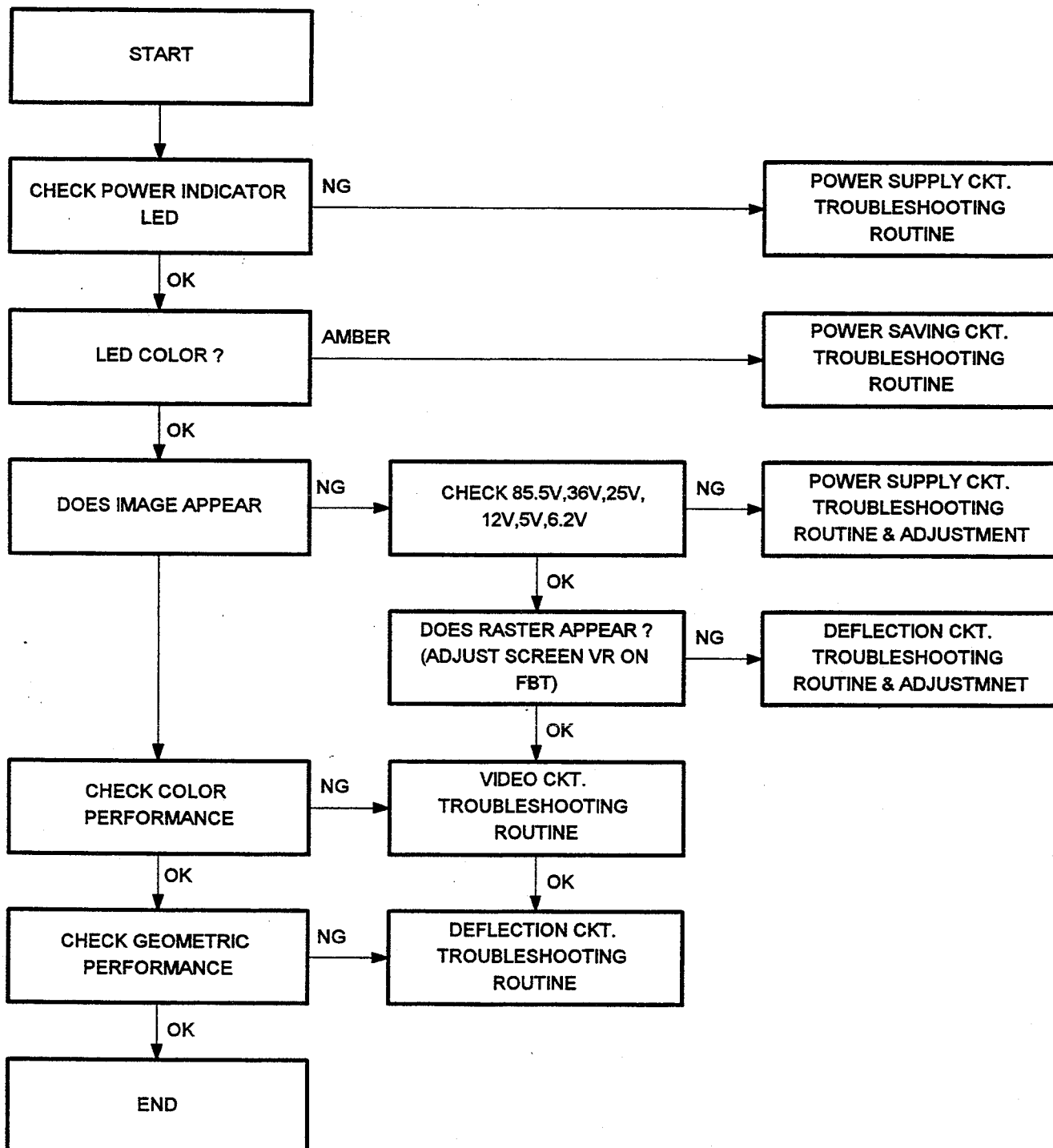
- (8) Horizontal green and magenta lines are converged by moving the two tabs at the same time. keeping the angle between them constant.



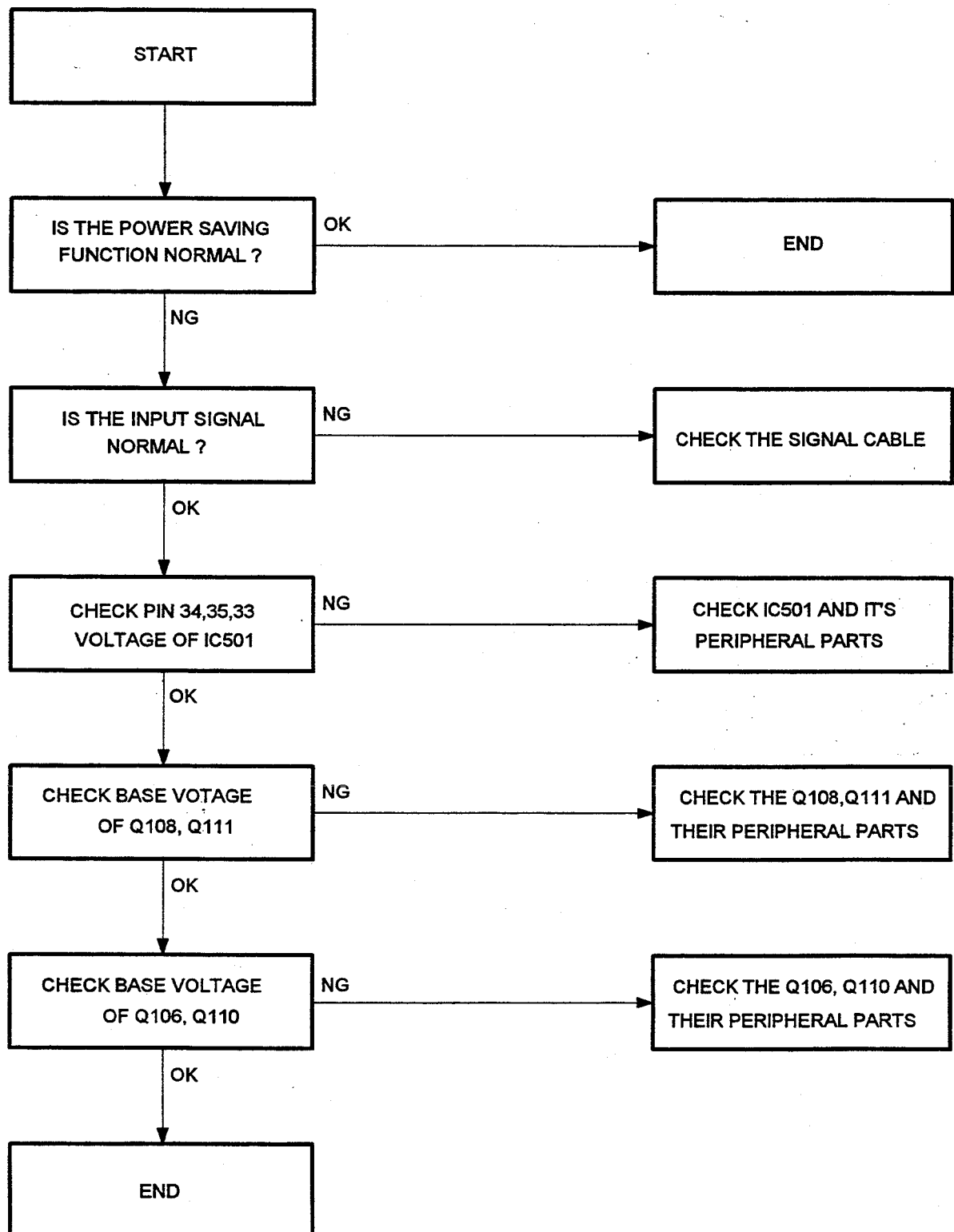
Note: Please don't adjust the purity magnets when service occurs.

6.0 TROUBLESHOOTING

6.1 MAIN TROUBLESHOOTING ROUTINE



6.2 POWER SAVING CIRCUIT TROUBLESHOOTING ROUTINE



VOLTAGE MEASURED RECORD

TEST CONDITIONS: TIMING : VGA-480
PATTERN: CROSS HATCH

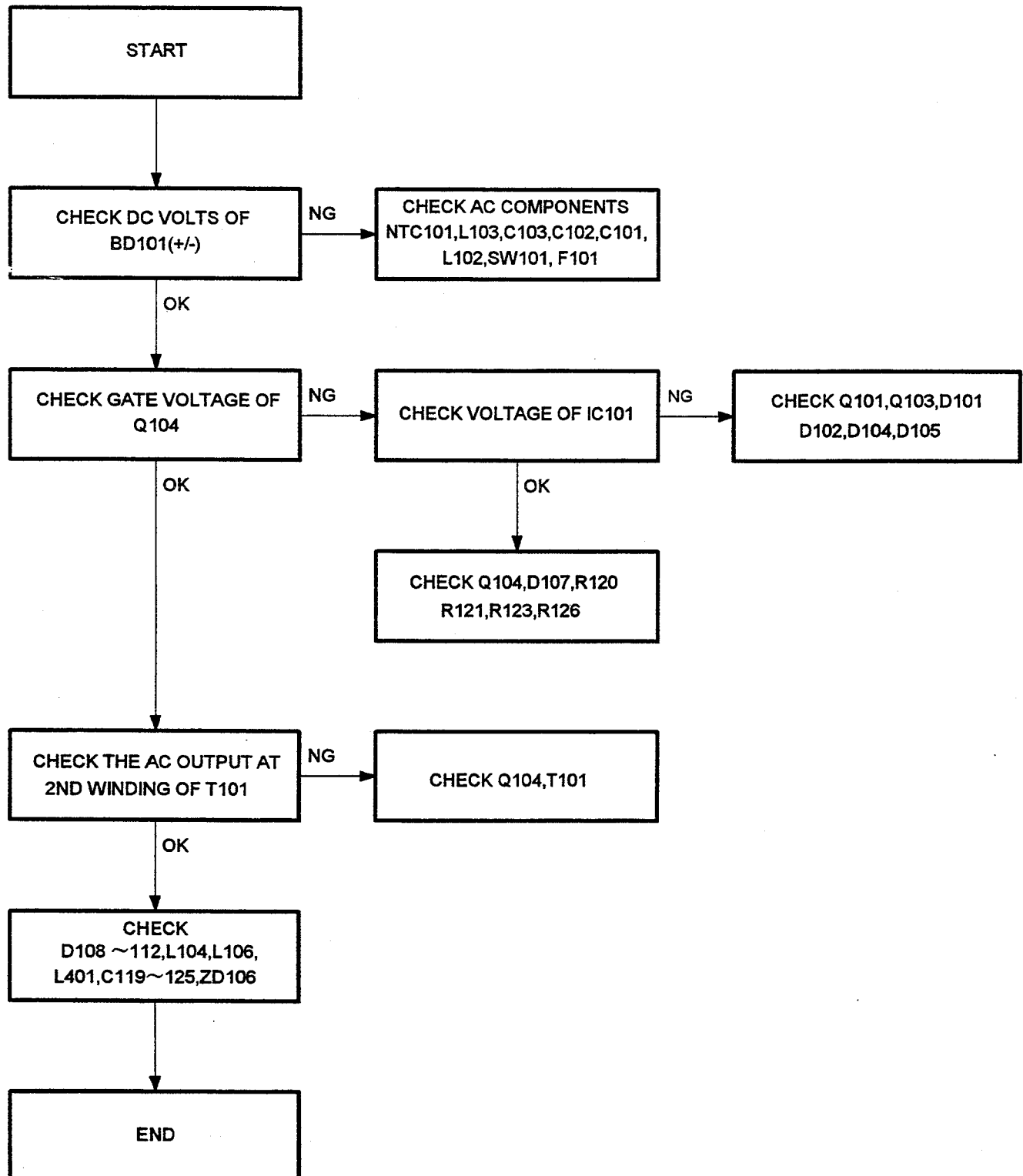
Unit: Volt

TR	Q102 (2SC945)			Q106 (2SB772)			Q107 (2SD882)		
PIN STATUS	E	C	B	E	C	B	E	C	B
NORMAL	GND	12.00	0.00	24.82	24.76	24.09	6.23	14.71	12.67
SUSPEND	GND	1.97	0.00	29.19	2.68	29.28	1.96	13.38	2.54
OFF	GND	1.97	0.00	27.16	2.68	27.28	1.96	14.92	2.54

TR	Q108 (2SC945)			Q109 (2SC945)			Q110 (2SB772)		
PIN STATUS	E	C	B	E	C	B	E	C	B
NORMAL	GND	0.00	0.66	6.25	12.67	6.88	6.55	6.36	5.81
SUSPEND	GND	24.72	0.03	1.95	2.54	1.12	4.63	4.46	3.89
OFF	GND	24.82	0.04	1.92	2.54	1.13	7.82	0.00	7.78

TR	Q111 (2SC945)		
PIN STATUS	E	C	B
NORMAL	GND	0.07	0.65
SUSPEND	GND	0.07	0.65
OFF	GND	11.62	0.04

6.3 POWER SUPPLY CIRCUIT TROUBLESHOOTING ROUTINE



VOLTAGE MEASURED RECORD

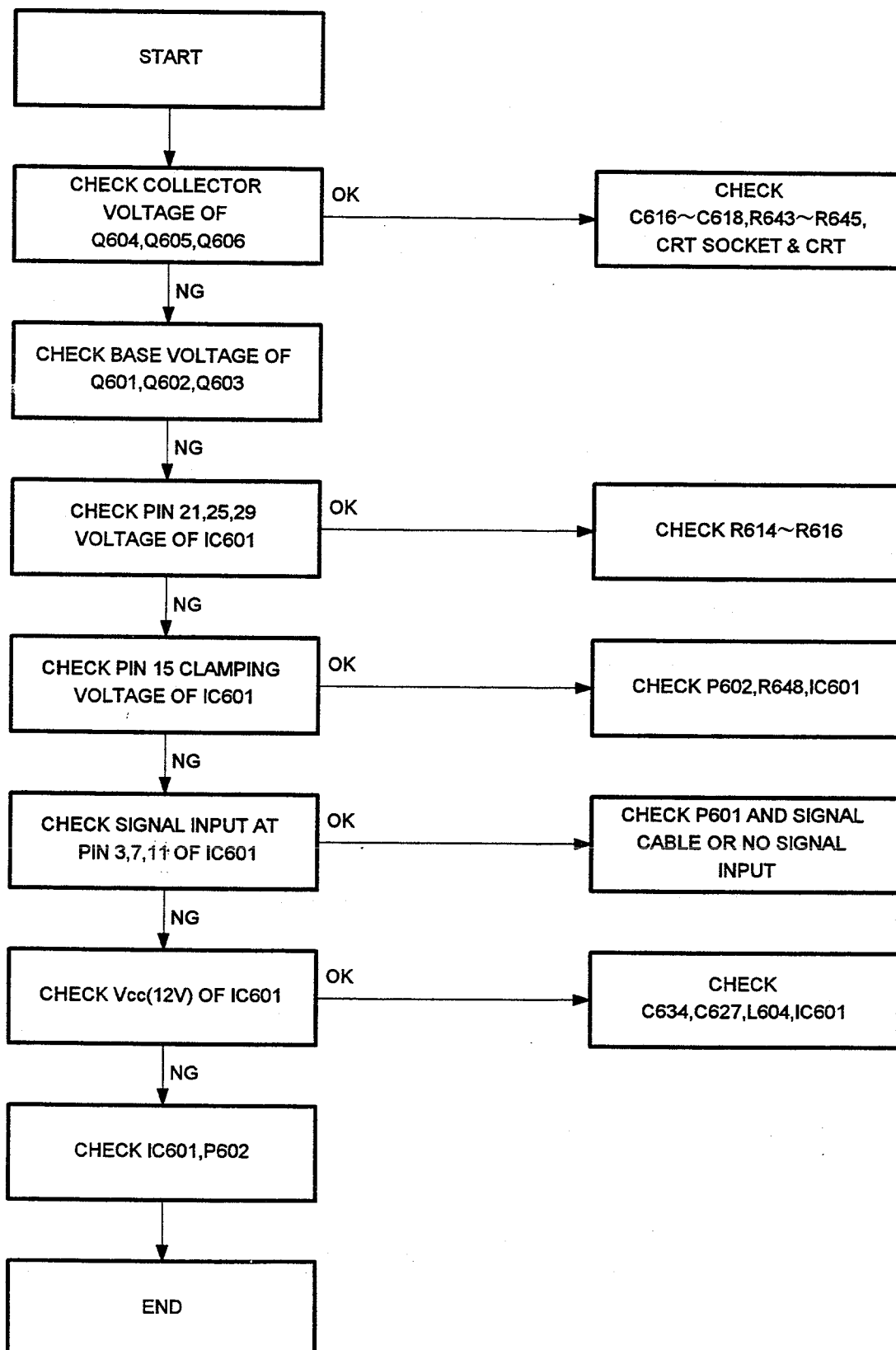
TEST CONDITIONS: TIMING : VGA-480
PATTERN: CROSS HATCH

Unit: Volt

TR	Q101 (BT169D)			Q103 (2SC945)			Q104 (2SK1507)		
PIN	K	G	A	E	C	B	G	D	S
AC IN									
110V	2.02	0.01	137.80	GND	0.01	0.69	3.45	137.56	0.11
220V	2.02	0.01	293.00	GND	0.01	0.70	1.35	304.60	0.05

IC	IC101 (3842)							
PIN	1	2	3	4	5	6	7	8
AC IN								
110V	3.24	2.49	0.21	0.93	GND	3.98	16.20	5.02
220V	3.32	2.49	0.30	0.94	GND	1.83	16.17	5.02

6.4 VIDEO CIRCUIT TROUBLESHOOTING ROUTINE



* The Troubleshooting Routine is match P/N 11S33-019A CRT board.

The following voltage records was measured with full white square pattern.

Transistor & Integration circuit

Unit: Volt

TR	Q601 (PH2369)			Q602 (PH2369)			Q603 (PH2369)		
PIN MODE	C	B	E	C	B	E	C	B	E
VGA-480	9.02	3.31	3.01	9.02	3.25	2.96	9.04	3.30	3.00

TR	Q604 (C3953)			Q605 (C3953)			Q606 (C3953)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA-480	9.02	48.5	9.60	9.02	48.6	9.61	9.04	48.5	9.63

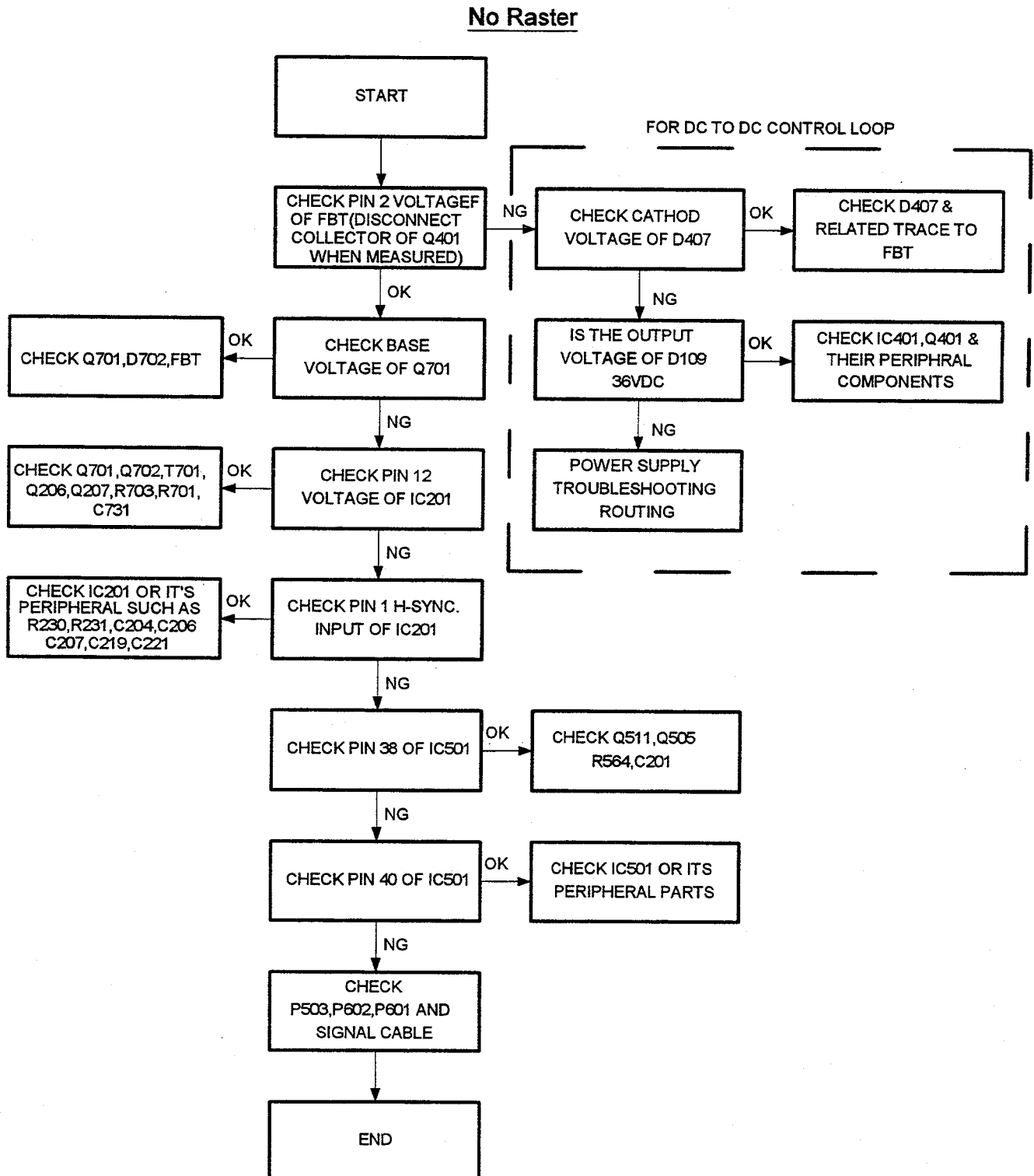
IC	IC601 (M51387)									
PIN MODE	1	2	3	4	5	6	7	8	9	10
VGA-480	NC	12.0	2.70	5.03	NC	12.0	2.71	4.98	NC	12.0

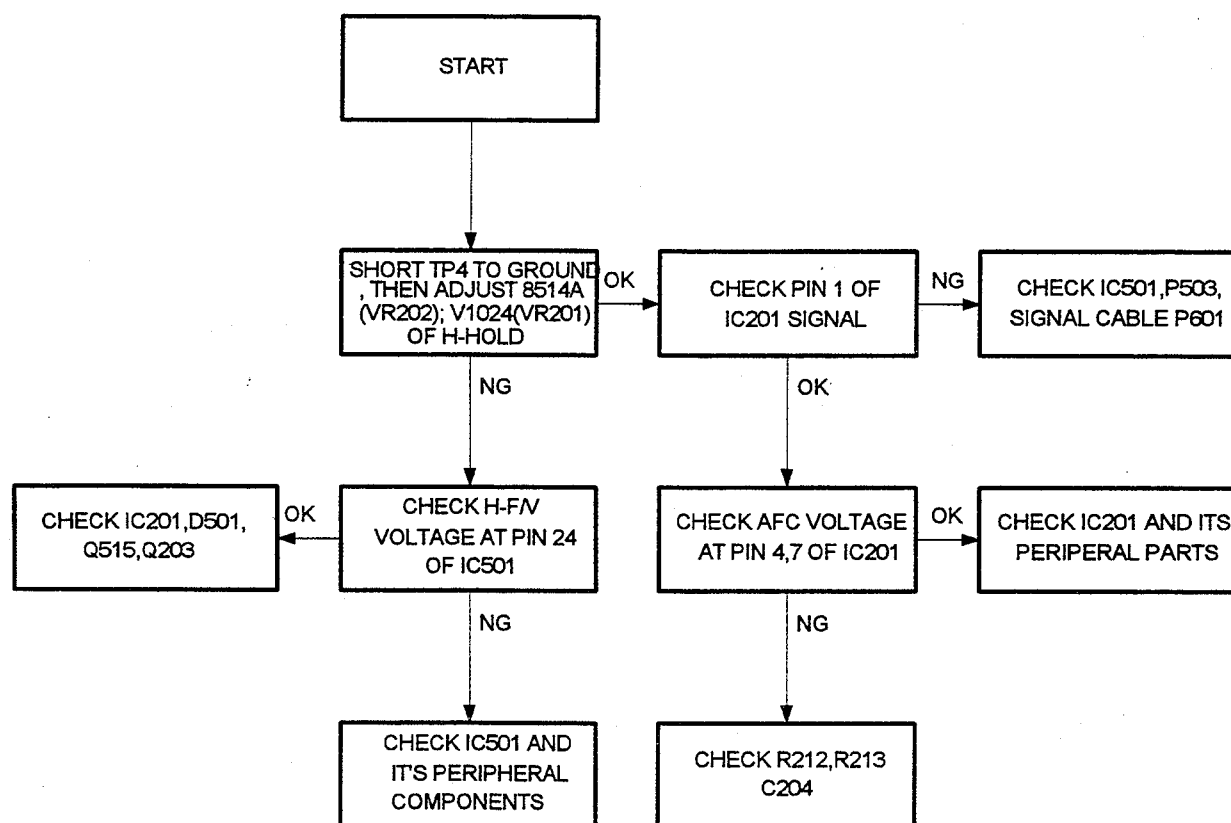
IC	IC601 (M51387)									
PIN MODE	11	12	13	14	15	16	17	18	19	20
VGA-480	2.71	5.05	NC	7.76	0.11	3.54	GND	GND	5.03	4.08

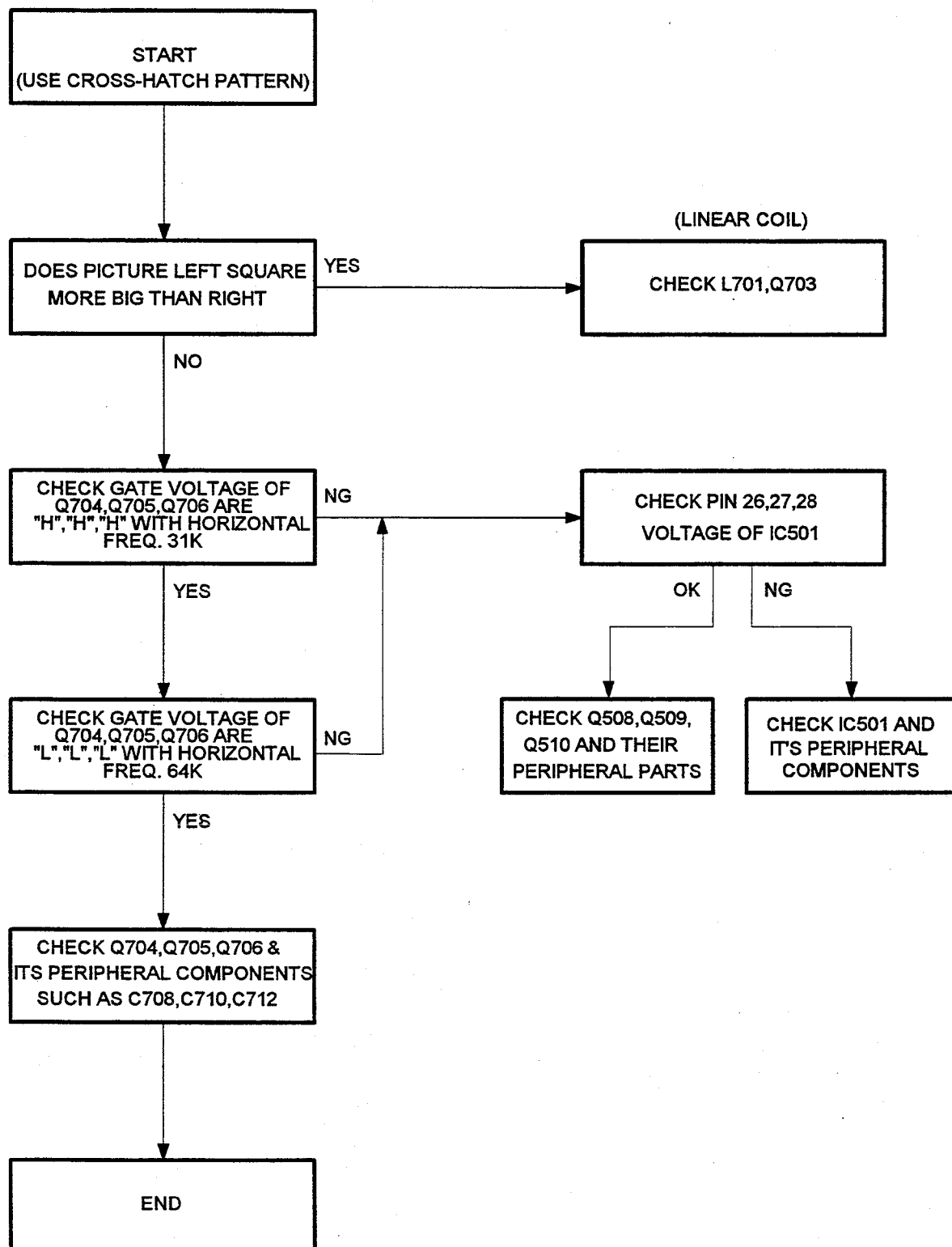
IC	IC601 (M51387)									
PIN MODE	21	22	23	24	25	26	27	28	29	30
VGA-480	3.30	GND	4.99	4.07	3.25	GND	5.06	4.06	3.31	12.0

6.5 DEFLECTION CIRCUIT TROUBLESHOOTING ROUTINE

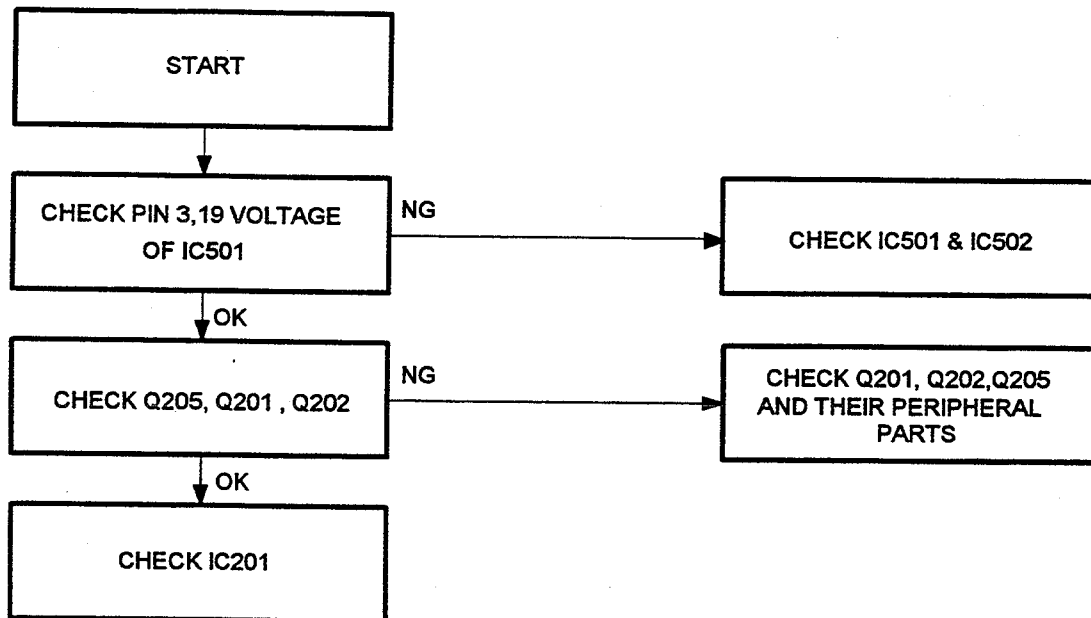
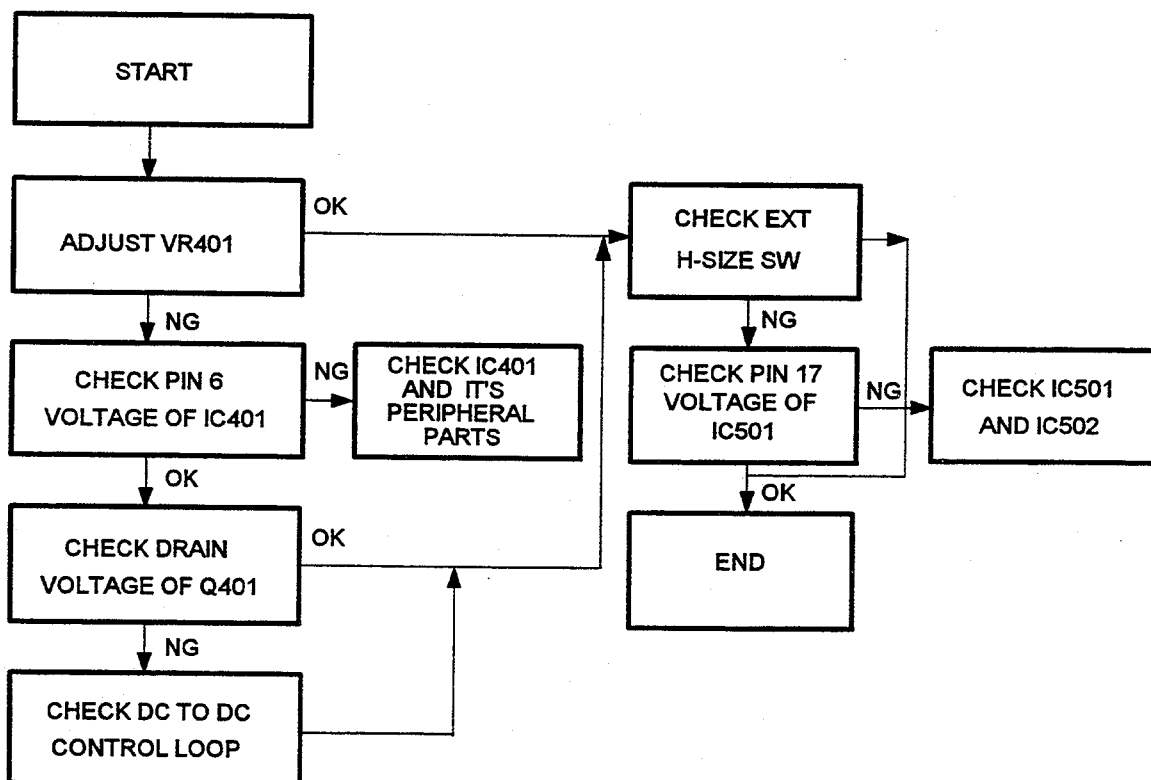
6.5.1 Horizontal Deflection Circuit



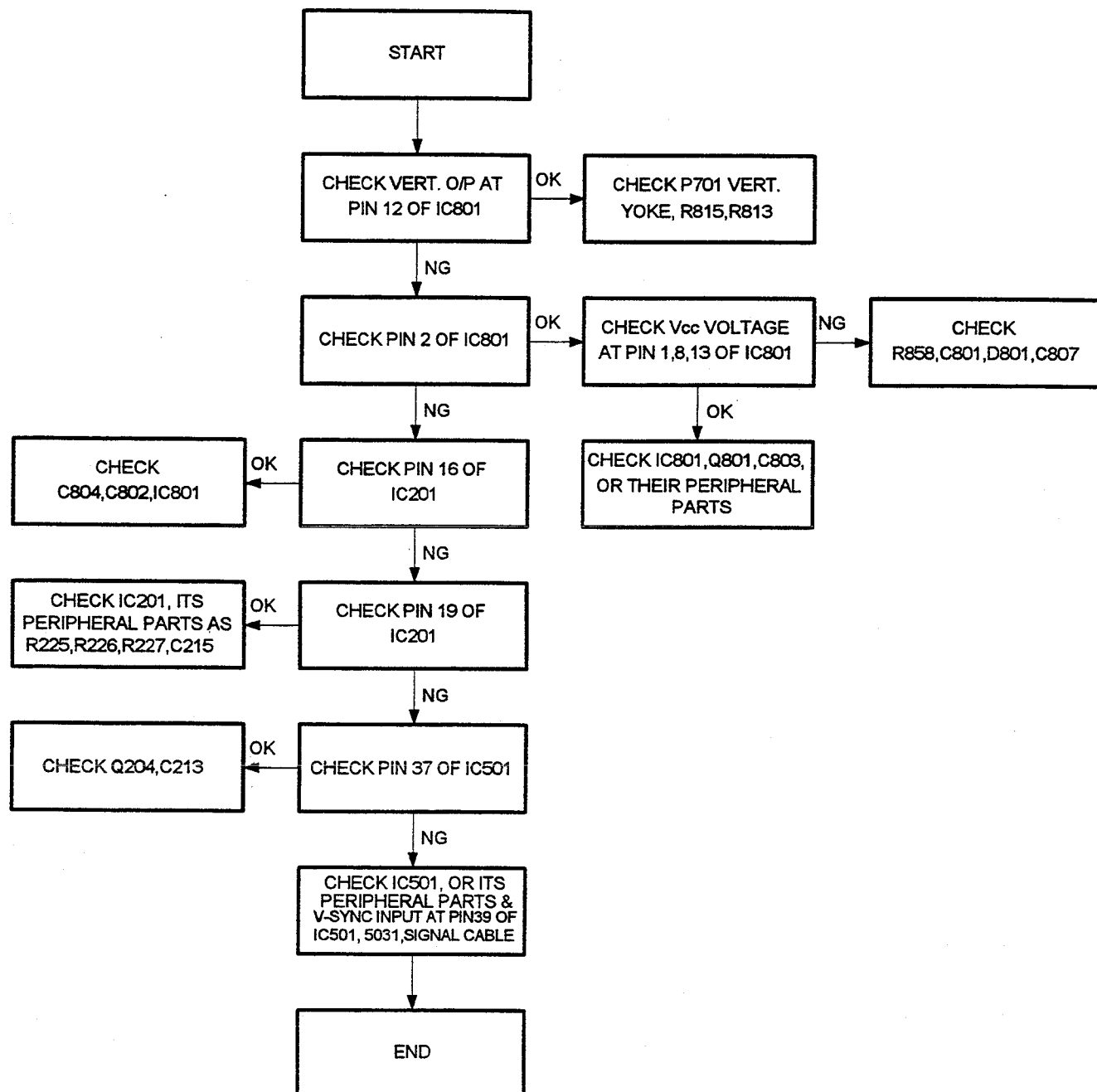
H-Asynchronous

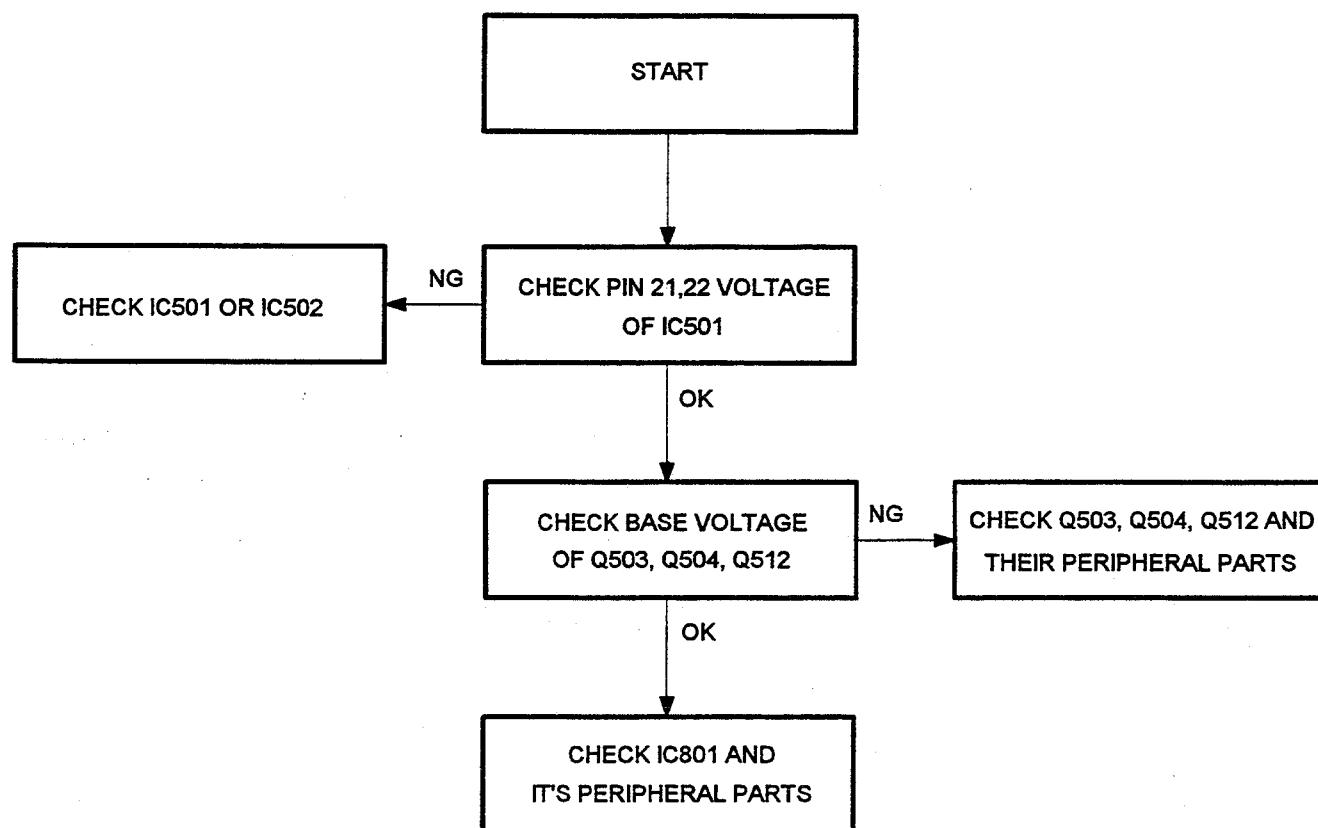
Linearity

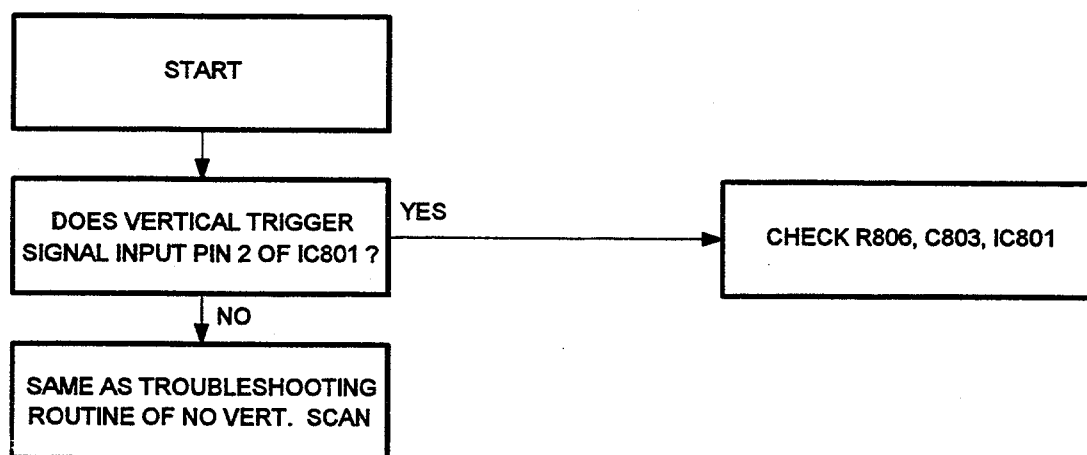
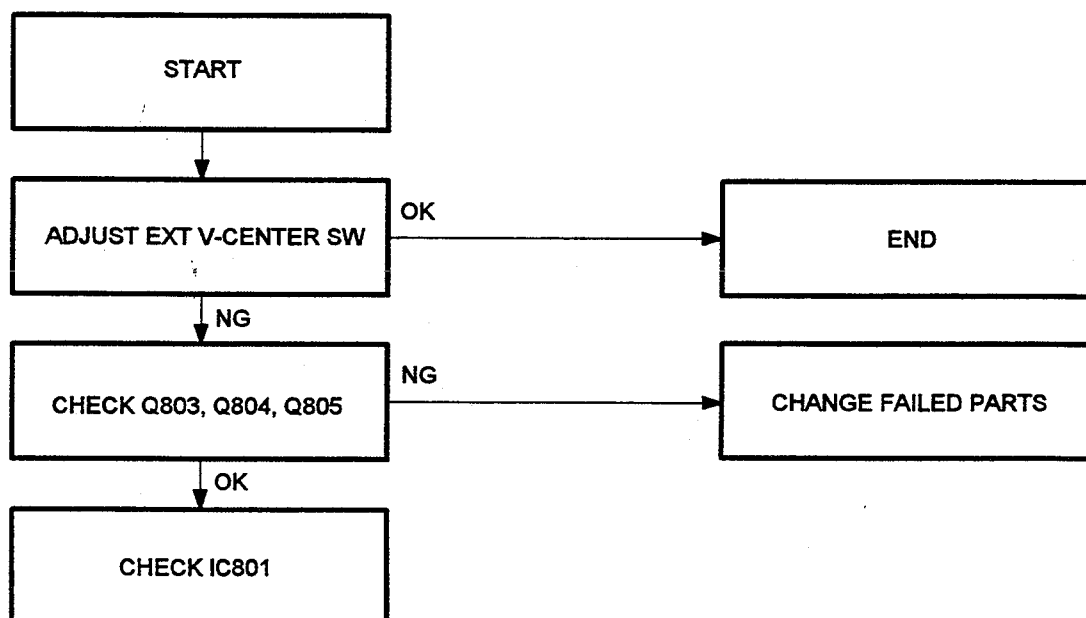
REMARK: * "L" means the voltage between gate and source is $< 0.7V$ which can't turn on the MOSFET.
 ** "H" means the voltage between gate and source is $\geq 0.7V$ which can turn on the MOSFET.

Out of phaseWidth Abnormal

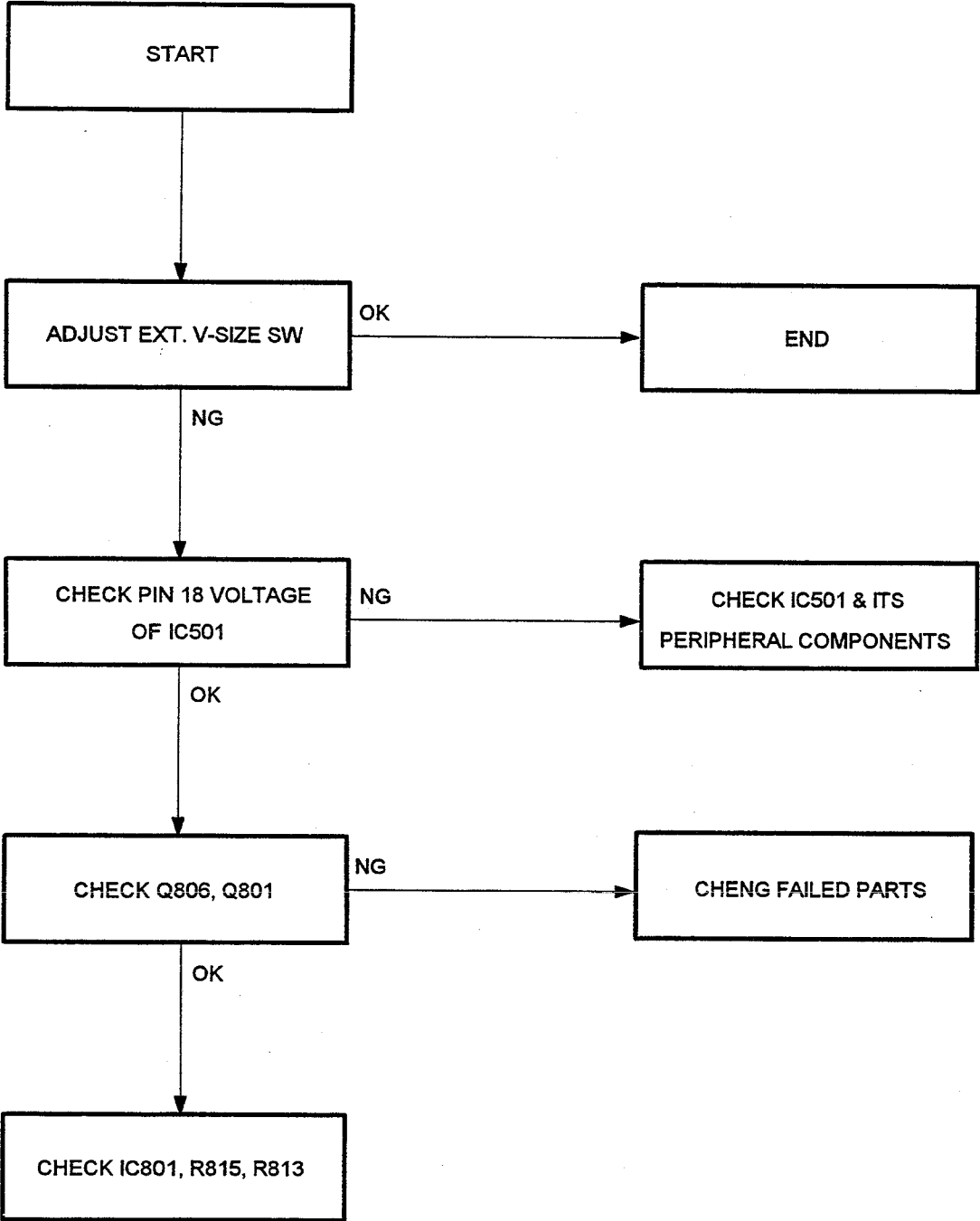
6.5.2 Vertical Deflection Circuit

No vertical scan

Side pin distortion

V-AsynchronousVertical position

Vertical Size



The following voltage records were measured with cross-hatch pattern.

Transistor

Unit:volt

TR	Q201 (2SA733)			Q202 (2SC945)			Q203 (2SA733)		
PIN	E	C	B	E	C	B	E	C	B
MODE									
VGA 480	2.85	GND	2.22	GND	0.00	0.62	10.39	5.82	9.80
8514NI	3.70	GND	3.08	GND	2.23	0.01	9.72	5.74	9.11
Color 64K	2.74	GND	2.11	GND	2.35	0.01	9.12	5.68	8.51

TR	Q204 (2SC945)			Q205 (2SC945)			Q206 (2SC945)		
PIN	E	C	B	E	C	B	B	C	E
MODE									
VGA 480	0.02	12.00	0.14	2.22	11.53	2.85	2.72	11.53	2.71
8514NI	0.02	12.00	0.14	3.08	11.50	3.72	2.63	11.50	2.64
Color 64K	0.02	12.00	0.14	2.11	11.51	2.75	2.54	11.51	2.56

TR	Q207 (2SA733)			Q208 (2SA733)			Q209 (2SC945)		
PIN	B	C	E	B	C	E	B	C	E
MODE									
VGA 480	2.72	GND	2.71	7.06	GND	4.96	3.82	8.81	3.18
8514NI	2.63	GND	2.64	7.03	GND	4.94	3.82	8.81	3.18
Color 64K	2.54	GND	2.56	7.05	GND	4.97	3.83	8.81	3.19

TR	Q401 (2SK890)			Q402 (2SA733)			Q501 (2SA733)		
PIN	G	D	S	E	C	B	E	C	B
MODE									
VGA 480	2.71	35.57	0.07	3.12	GND	4.94	4.88	0.01	7.02
8514NI	4.62	34.89	0.15	3.41	GND	4.94	4.88	0.01	7.01
Color 64K	6.17	35.74	0.21	3.46	GND	4.95	4.88	0.01	7.02

TR	Q502 (2SA733)			Q503 (2SC945)			Q504 (2SA733)		
PIN	G	D	S	E	C	B	E	C	B
MODE									
VGA 480	4.87	4.85	4.18	2.31	10.17	2.92	10.80	2.32	10.17
8514NI	4.87	4.85	4.18	2.36	10.22	2.97	10.85	2.28	10.22
Color 64K	4.88	4.85	4.19	2.36	10.25	2.97	10.88	2.29	10.25

TR	Q505 (2SA733)			Q506 (2SC945)			Q507 (2SC945)		
PIN	E	C	B	E	C	B	E	C	B
MODE									
VGA 480	4.87	0.14	4.89	4.62	4.88	0.23	GND	0.04	0.71
8514NI	4.87	0.23	4.90	4.61	4.87	0.53	GND	0.04	0.71
Color 64K	4.88	0.29	4.90	0.03	4.88	0.37	GND	0.04	0.71

TR	Q508 (2SC945)			Q509 (2SC945)			Q510 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	9.21	0.04	GND	10.72	0.04	GND	10.72	0.04
8514NI	GND	0.03	0.71	GND	10.71	0.04	GND	10.71	0.04
Color 64K	GND	0.04	0.71	GND	0.04	0.71	GND	0.04	0.71

TR	Q511 (2SC945)			Q512 (2SA733)			Q515 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	0.60	4.87	0.69	12.34	7.00	12.06	11.04	12.01	11.22
8514NI	0.51	4.87	0.57	12.34	7.25	12.05	5.98	12.00	5.49
Color 64K	0.38	4.88	0.43	12.36	7.42	12.03	1.42	12.01	0.59

TR	Q701 (2SC4924)			Q702 (2SC2688)			Q703 (IRF630)		
PIN MODE	E	C	B	E	C	B	G	D	S
VGA 480	GND	27.49	-0.96	GND	82.91	-0.73	58.48	81.25	59.10
8514NI	GND	43.31	-0.81	GND	82.62	-0.82	105.36	93.28	93.29
Color 64K	GND	120.70	-0.90	GND	84.54	-0.88	136.65	124.61	124.60

TR	Q704 (IRF520)			Q705 (IRF520)			Q706 (IRF520)		
PIN MODE	G	D	S	G	D	S	G	D	S
VGA 480	11.88	-0.01	-0.01	10.61	-0.01	-0.01	9.12	-0.01	-0.01
8514NI	0.03	30.64	-0.01	10.60	-0.01	-0.01	0.03	30.92	-0.01
Color 64K	0.04	37.63	-0.01	0.01	37.79	-0.01	0.04	37.88	-0.01

TR	Q707 (IRF520)			Q708 (BF422)			Q709 (2SK791)		
PIN MODE	G	D	S	E	C	B	G	D	S
VGA 480	NC	NC	NC	GND	0.03	0.64	11.47	3.77	GND
8514NI	NC	NC	NC	GND	105.05	0.02	10.98	7.21	GND
Color 64K	NC	NC	NC	GND	136.09	0.02	10.51	13.79	GND

TR	Q711 (2SA733)			Q712 (2SA733)			Q713 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	12.78	11.78	12.26	11.81	GND	11.78	11.47	18.52	11.81
8514NI	12.81	11.04	12.35	11.27	GND	11.04	10.99	18.46	11.27
Color 64K	12.84	9.88	12.47	10.79	GND	9.88	10.52	18.36	10.79

TR	Q714 (2SA733)			Q715 (BF423)			Q716 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	11.47	GND	11.81	2.60	1.97	2.03	GND	0.11	0.71
8514NI	10.99	GND	11.27	2.68	2.05	2.11	GND	0.06	0.72
Color 64K	10.52	GND	10.79	2.73	1.18	2.17	GND	0.31	0.72

TR	Q717 (2SC945)			Q718 (2SA952)			Q719 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	GND	0.00	0.68	-0.08	-0.57	0.42	GND	0.71	0.09
8514NI	GND	-0.04	0.60	-0.08	-0.47	0.31	GND	0.72	0.09
Color 64K	GND	0.46	-0.69	-0.05	-0.90	0.43	GND	0.71	0.09

TR	Q801 (2SC945)			Q802 (2SA733)			Q803 (2SC945)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	2.61	6.01	3.13	5.91	0.00	5.92	0.74	9.97	1.34
8514NI	2.52	6.01	3.04	5.88	0.01	5.89	0.69	11.01	1.29
Color 64K	2.49	6.02	3.00	5.88	0.01	5.87	0.66	11.75	1.25

TR	Q804 (2SC2001)			Q805 (2SA952)			Q806 (2SA733)		
PIN MODE	E	C	B	E	C	B	E	C	B
VGA 480	10.53	24.51	10.49	10.53	GND	9.88	3.13	GND	2.47
8514NI	11.55	24.79	11.52	11.55	GND	10.92	3.04	GND	2.38
Color 64K	12.29	24.95	12.25	12.30	GND	11.70	3.01	GND	2.35

Integration Circuit

Unit:volt

IC	IC201 (LA7851)									
PIN MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	7.49	7.52	7.46	-0.11	4.26	3.50	5.81	5.77	5.60	11.54
8514NI	7.47	7.48	7.42	-0.07	3.71	3.04	5.68	5.71	5.46	11.53
Color 64K	7.46	7.46	7.37	-0.04	3.50	2.84	5.56	5.68	5.35	11.51

IC	IC201 (LA7851)									
PIN MODE	11	12	13	14	15	16	17	18	19	20
VGA 480	5.98	3.99	0.35	GND	NC	6.14	0.20	2.62	5.57	11.54
8514NI	5.84	3.87	0.34	GND	NC	6.13	0.20	2.54	5.40	11.53
Color 64K	5.71	3.69	0.37	GND	NC	6.12	0.20	2.63	5.51	11.51

IC	IC401 (UC3843)							
PIN MODE	1	2	3	4	5	6	7	8
VGA 480	3.11	2.48	0.08	1.47	GND	2.85	12.04	5.00
8514NI	3.42	2.48	0.16	1.09	GND	4.75	12.04	5.00
Color 64K	3.49	2.48	0.23	0.87	GND	6.35	12.02	5.00

IC	IC501 (UM6860B)									
PIN MODE	1	2	3	4	5	6	7	8	9	10
VGA 480	4.88	4.88	4.88	4.88	4.88	4.88	4.86	4.86	4.88	4.88
8514NI	4.88	4.88	4.88	4.88	4.88	4.88	4.86	4.86	4.88	4.88
Color 64K	4.88	4.88	4.88	4.88	4.88	4.88	4.86	4.86	4.88	4.88

IC	IC501 (UM6860B)									
PIN MODE	11	12	13	14	15	16	17	18	19	20
VGA 480	4.88	4.88	4.86	2.19	2.11	GND	2.99	0.89	2.33	1.74
8514NI	4.88	4.88	4.86	2.17	2.12	GND	2.28	0.62	3.81	1.64
Color 64K	4.88	4.88	4.86	2.29	2.00	GND	2.33	1.53	3.13	1.37

IC	IC501 (UM6860B)									
PIN MODE	21	22	23	24	25	26	27	28	29	30
VGA 480	3.56	0.49	NC	11.52	2.67	0.09	0.09	0.09	4.88	4.88
8514NI	3.45	0.56	NC	5.81	2.67	2.67	0.08	2.66	4.88	4.88
Color 64K	2.93	0.48	NC	0.59	2.67	2.67	2.67	2.65	4.88	4.88

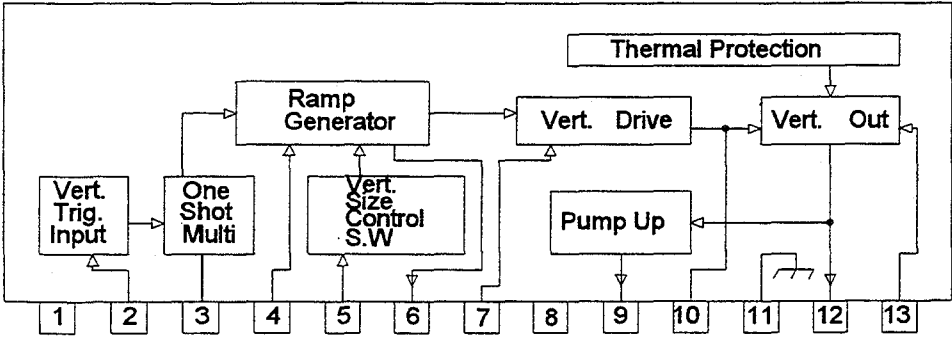
IC	IC501 (UM6860B)									
PIN MODE	31	32	33	34	35	36	37	38	39	40
VGA 480	0.14	4.88	4.89	4.36	4.37	0.13	0.15	0.69	4.63	4.26
8514NI	0.13	4.88	4.89	4.36	4.37	0.12	0.16	0.58	4.61	4.35
Color 64K	0.12	4.88	4.89	4.36	4.37	0.12	0.15	0.43	0.03	0.32

IC	IC502 (24C02)								IC701 (TL431)		
PIN MODE	1	2	3	4	5	6	7	8	R	A	K
VGA 480	4.89	GND	4.88	GND	4.88	4.88	GND	4.89	2.48	GND	5.06
8514NI	4.89	GND	4.88	GND	4.88	4.88	GND	4.89	2.48	GND	5.40
Color 64K	4.89	GND	4.88	GND	4.88	4.88	GND	4.89	2.48	GND	5.94

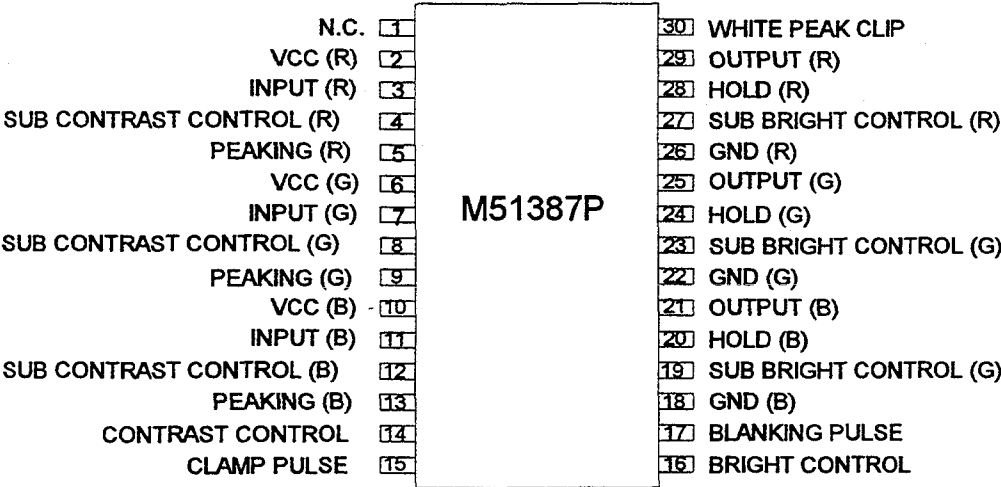
IC	IC801 (LA7838)												
PIN MODE	1	2	3	4	5	6	7	8	9	10	11	12	13
VGA 480	11.74	6.13	5.86	6.03	11.12	5.93	5.59	24.50	0.82	1.45	GND	13.52	24.11
8514NI	11.73	6.12	5.86	6.03	11.11	5.90	5.63	24.78	0.78	1.45	GND	13.57	24.37
Color 64K	11.71	6.11	5.85	6.02	11.09	5.88	5.63	24.95	0.76	1.44	GND	13.54	24.54

7.0 IC CONFIGURATION

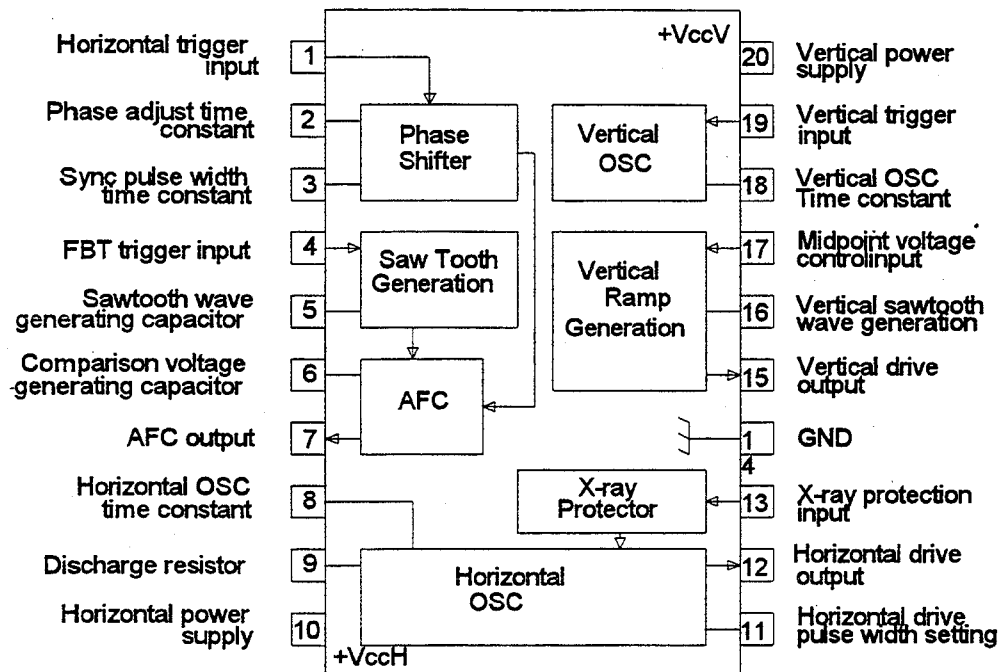
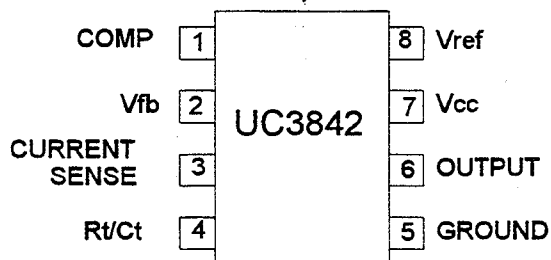
1.IC801(LA7838)



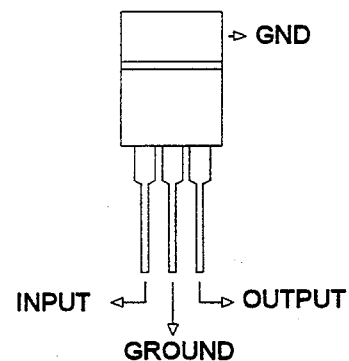
2.IC601(M51387)



3.IC201(LA7851)

4.IC101(3842)
IC401(3843)

5.IC102(7805)



8.0 LAYOUT FOR MAIN COMPONENTS AND ADJUSTED

9.0 CIRCUIT DIAGRAM

10.0 RECOMMENDED SPARE PARTS LIST

MAIN BOARD REV.A					
ITEM	PART NO.	DESCRIPTION	LOCATION	PIN'S ARRANGE	REMARK
1	17A06-150H	3842	IC101		●
2	17A07-040H	7805	IC102		
3	17A06-140H	LA7851	IC201		◎
4	17A06-190H	3843	IC401		●
5	16N40-003R	6860B	IC501		◎
6	16M08-006R	24C02	IC502		
7	17A06-130H	LA7838	IC801		◎
8	14T92-011E	SCR BT169D	Q101	KGA	
9	14K22-090S	2SK1057	Q104	GDS	●
10	14B26-030B	2SB772	Q106,Q110	ECB	
11	14D26-0108	2SD882	Q107	ECB	
12	14C92-111B	2SC945	Q108,Q111,Q202,Q205, Q206,Q503,Q717,Q713, Q801,Q803	ECB	◎
13	14A92-021B	2SA733	Q201,Q203,Q207,Q504, Q512,Q711,Q712,Q713, Q806	ECB	◎
14	14K22-110W	2SK890	Q401	GDS	
15	14C3P-150C	2SC4924	Q701	BCE	●
16	14K22-110W	IRF630	Q703	GDS	
17	14K22-220Y	IRF520	Q704,Q705,Q706	GDS	●
18	14C92-011E	BF422	Q708	ECB	
19	14K22-130P	2SK791	Q709	GDS	◎
20	14K22-230S	2SK903	Q709	GDS	ALTERNATE
21	14A92-061E	BF423	Q715	ECB	
22	14C92-101B	2SC2001	Q804	ECB	
23	14A92-071B	2SA952	Q805,Q718	ECB	
24	15D67-F000	600V 4A PBL405	BD101		
25	15S3C-702F	DD54RC	D702		
26	49FB2-0A0B	250V 3.15A	F101		●
27	47S00-0660	ERL-35	T101		
28	47D10-0270	EI-19	T701		
29	47F13-0460	FBT	T702		

CRT BOARD REV.B					
ITEM	PART NO.	DESCRIPTION	LOCATION	PIN'S ARRANGE	REMARK
1	17A04-020H	M51387P	IC601		●
2	14C92-031E	PH2369	Q601,Q602,Q603	CBE	
3	14A26-160C	2SC3953	Q604,Q605,Q606	ECB	

* PRIORITY 1.● 2.◎

11.0 CRT CONTRAST LIST

THE 1565D SERIES MONITOR HAVE SEVERAL KINDS OF CRTS AS BELOW.
THE DIFFERENT PARTS BETWEEN THEM IS SHOWN IN BELOW TABLE.

PART NO. PART NAME	CRT	PHILIPS 20H15-08AA M36EDR320X131/2F01	PANASONIC 20H15-11AC M36KPC030X01
R145		15 Ω 1W 23245-1094	15MM JUMPER 54J05-150B
R412		270K 1/4W 5% 22225-274M	150K 1/4W 5% 22225-154M
R736		47K 1/4W 5% 22225-473M	20K 1/4W 5% 22225-203M
R737		120K 1/8W 5% 22215-123M	150K /18W 5% 22215-154M
R805		12K 1/8W 5% 22215-123M	9.1K 1/8W 5% 22215-912M
VR401		500 Ω VR 25B20-501B	1K VR 25B20-102B
D109		SS00DD-012	SS00DD-013
C716		0.36 μ 400V 35155H3647	0.33 μ 400V 35155H3347

MEMO

OWNER: _____

